

U.S. Application No. 10/036,338
Amendment dated June 30, 2004
Reply to Office Action dated April 2, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-40. (canceled)

41. (currently amended) A sputtering target assembly comprising a sputtering target having sidewalls, and further comprising a top portion made of a non-sputtering or sputter resistant material and attached to the sidewalls of the sputtering target, wherein said sidewalls and said top portion form a hollow cathode target, wherein the top portion is made of a valve metal base material having a strong (100) texture.

42. (canceled)

43. (currently amended) The sputtering target assembly according to claim-42 41, wherein the valve metal base material is a tantalum-base material, a niobium-base material, or both.

44. (currently amended) The sputtering target assembly according to claim-42 41, wherein the valve metal base material is a valve metal or alloy thereof having a strong (100) texture.

45. (original) The sputtering target assembly according to claim 44, wherein the valve metal alloy comprises tantalum and tungsten.

46. (currently amended) A sputtering target assembly comprising a sputtering target having sidewalls, and further comprising a top portion made of a non-sputtering or sputter resistant material and attached to the sidewalls of the sputtering target, wherein said sidewalls and said top portion form a hollow cathode target~~The sputtering target assembly according to claim 41, wherein the top portion is made of a non-hydriding material copper.~~

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47. (previously presented) The sputtering target assembly according to claim 60, wherein the outer shell is made of a non-hydrating material.

48. (original) The sputtering target assembly according to claim 47, wherein the outer shell comprises aluminum, copper, or both.

49. (previously presented) The sputtering target assembly of claim 41, wherein said sidewalls comprise at least one valve metal and said valve metal has

a) a grain size of 5 ASTM or finer;

b) a mixed (111)-(100) global texture; or

c) a uniform grain size wherein the grain size variance is ± 2 ASTM; or combinations

thereof.

50. (original) The target of claim 49, wherein said target has at least two of the three properties.

51. (original) The target of claim 49, wherein said target has all three properties.

52. (original) The target of claim 49, wherein said target is at least partially

recrystallized.

53. (original) The target of claim 49, wherein said target is at least 95% recrystallized.

54. (original) The target of claim 49, wherein said target is fully recrystallized.

55. (currently amended) The target of claim 49, wherein property a) is present and said has a primary (111)-type global texture that is free of sharp, localized bands of (100) texture.

56. (original) The target of claim 49, wherein property a) is present and said grain size is from about 5 ASTM to about 13 ASTM.

57. (original) The target of claim 49, wherein property a) is present and said grain size is from about 5 ASTM to about 10 ASTM.

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58. (original) The target of claim 49, wherein property a) is present and said grain size is from about 7 ASTM to about 9 ASTM.

59. (canceled)

60. (previously presented) The sputtering target assembly of claim 41 further comprising an outer shell made of non-sputtering material attached to said sidewalls and said top portion.

61. (previously presented) The sputtering target assembly of claim 49, wherein said valve metal is tantalum or an alloy thereof.

62. (previously presented) The sputtering target assembly of claim 49, wherein said valve metal is niobium or an alloy thereof.